

ABSTRACT

A Q-pole type mass spectrometer can be used under a high-pressure atmosphere of more than 0.1 Pa. The Q-pole type mass spectrometer can analyze the mass of gas molecules continuously, and can separate mass properly even if an ion is injected at high speed in order to reduce the influence of an end electric field near an end face (fringing) of the Q-pole. The motion of the ions to be measured in the diameter direction is independent of the motion of ions in the axial direction within the Q-pole region of the Q-pole type mass spectrometer. In the Q-pole type mass spectrometer installed in a reduced pressure atmosphere, the motion of ions to be measured in the axial direction advancing from an ion source toward a collector, is controlled within the Q-pole region so as to separate the mass of the ions to be measured by Coulomb force generated by a quadrupole high-frequency electric field in the diameter direction.